Amendments to the Specification:

Please replace the paragraph spanning page 6, lines 8-10 with the following amended paragraph:

A receiver in which the smoothing of channel estimates is adapted separately for per ray channel estimation according to the above-incorporated application is shown in FIG. 5, and channel estimation may be performed as in FIG. 6. The arrangement of FIG. 5 includes a per-ray, asymmetrical smoothing filter synthesizer 20, and a per-ray asymmetrical smoothing filter 21.

Please replace the paragraph spanning page 6, lines 20-25 with the following amended paragraph:

It is well known that a receiver AFC provides an estimate of the local crystal reference oscillator's error relative to the remote transmitter, and that this AFC estimate can be used to correct the crystal oscillator in order to correct the local transmitter frequency, as shown in FIG. 7. The arrangement depicted in FIG. 7 includes a frequency error estimator 18. However, past attempts to ascribe observed variations in the received signal in part to Doppler channel variation via a channel estimate and in part to a crystal frequency error were inaccurate, as the channel estimate absorbed part of the frequency error.

Please replace the paragraph spanning page 17, line 23 through page 18, line 2 with the following amended paragraph:

FIG. 13 is similar to FIG. 12, except that the inner loops are separate for each multipath ray. In this embodiment, there is one NCO per ray, NCO 720-1, . . ., NCO 720-n. Likewise, there are per-ray inner loop integrators (510-1, . . ., 510-n) and a per-ray ARCTAN circuit, which is now generalized to low pass filter 507a-1, ..., 507a-n and Cartesian-to-polar converter 507b-1, ..., 507b-n. The Cartesian-to-polar converter produces both an angle output and a signal strength output. The signal strength output can be related to the amplitude of the differential phase discriminator output, which is in turn related to the power of a ray. The

inner loop thus now comprises a collection of n loops, one per significant multipath ray, and the respective loop integrators settle to output mean values related to the mean frequency error of the associated ray. The combiner 507 performs a weighted sum of the inner loop integrator outputs using the amplitude-related output of the associated Cartesian-to-polar convertor as the associated weight. The weighted output is then **[[a]]** an estimate of the common or relative frequency error across all rays and is fed to the outer AFC loop integrator 508 included in control processor 19. The sum of the signal strength output of Cartesian-to-polar convertors 507b-1, . . ., 507-n may also be formed by a second summer (not shown) and used for automatic gain control to keep the sum constant at a desired value, for example unity, in which case it is unnecessary to divide the combined output of 507 by the sum of the AFC weights.

Please replace the paragraph at page 19, lines 23-29 with the following amended paragraph:

According to this other aspect, the MS can handle multiple BSs by using a separate inner loop AFC for each ray, irrespective of the BS from which the ray originates. Alternatively, in FIG. 15A, received rays are grouped into a first group of rays originating from a first BS and a second group of rays originating from a second BS, based, e.g., on the Long Codes. The exemplary arrangement depicted in FIG. 15A includes a first summer 504-1 for the base station-1 rays, and a second summer 504-2 for the base station-2 rays. Although, in the interest of simplicity, the device shown in FIG. 15A applies to two base stations, it will be appreciated that the invention is not limited to handling signals received from two base stations but may be applicable to signals received from any number of base stations.

Please replace the Abstract appearing on page 32 of the specification with the new Abstract shown on the following page:

ABSTRACT

Code division multiple access signals received through at least one multipath propagation channel are processed to produce at least one relative frequency error estimate. This involves receiving and processing the signals using a local frequency reference oscillator to obtain representative complex numerical samples for processing. The complex numerical samples are correlated with shifts of a locally generated despreading code and a number of complex channel estimates are produced, each corresponding to a different delayed ray of the at least one multipath propagation channel. A frequency error estimate is computed for each ray based on successive values of a respective one of the channel estimates, and a weighted summation of the frequency error estimates is performed to provide at least one relative frequency error estimate.